

## DEPARTMENT OF TRANSPORTATION

Research and Special Program  
Administration

## 49 CFR Part 173

[Docket HM-179 Advance Notice]

## Definition of Oxidizer

**AGENCY:** Materials Transportation Bureau (MTB) Research and Special Programs Administration, DOT.**ACTION:** Advance notice of proposed rulemaking.**SUMMARY:** The MTB is publishing this Advance notice of proposed rulemaking to request comments on efforts to make the definition of an oxidizer more specific and to provide tests which shippers may use to determine whether their products are oxidizers for purposes of transportation.**DATE:** Comments must be received by September 14, 1981.**ADDRESS:** Comments must be addressed to the Dockets Branch, Materials Transportation Bureau, U.S. Department of Transportation, Washington, D.C. 20590. Comments should identify the docket and be submitted, if possible, in triplicate. The Dockets Branch is located in Room 8426 of the Nassif Building, 400 7th Street, S.W., Washington, D.C. Office hours are 8:30 a.m. to 5:00 p.m., Monday thru Friday. Telephone (202)426-3148.**FOR FURTHER INFORMATION CONTACT:** Dr. Charles Ke, Sciences Branch, Technical Division, Office of Hazardous Materials Regulation, Materials Transportation Bureau, Department of Transportation, Washington, DC 20590. (202-426-2311).**SUPPLEMENTARY INFORMATION:** For purposes of definition, oxidizers have been divided into two groups, liquids and solids. Test methods and criteria are proposed which will enable a shipper to determine whether a material he wishes to ship meets the definition of an oxidizer. The principal reasons for this advance notice of proposed rulemaking are to request comments from interested persons as to the adequacy of the proposal and to solicit comments concerning alternative methods. Relative to the latter purpose, MTB would like to know if there are any consensus standard test methods which could be used in place of, or in addition to, the suggested methods?

The MTB anticipates that a number of highly competent and qualified experts will, upon review of Appendix B, consider the proposed methods for testing of oxidizers to be less than representative of currently available technology. This is intentional. The MTB has attempted to develop methods that would not require the acquisition of expensive and complicated test equipment.

In consideration of the foregoing, the MTB is considering the issuance of a proposal to revise § 173.151 and add an Appendix C to Part 173 of Title 49, Code of Federal Regulations as follows:

**§ 173.151 Oxidizer; definition.**

For the purpose of this subchapter, an "Oxidizer" is a material which may cause the ignition of combustible materials without the aid of an external source of ignition or when mixed with combustible materials, increases the rate of burning of these materials when the mixtures are ignited. Oxidizers are divided into two general groups:

(a) *Solid Oxidizers.* A solid oxidizer is a solid substance which accelerates the burning rate of dry wood sawdust as much or more than ammonium persulfate, when tested in accordance with the method described in Appendix C of this part.

(b) *Liquid oxidizers.* A liquid oxidizer is a liquid substance which when tested in accordance with the method described in Appendix C of this part, will initiate a fire in the test container.

**Appendix C: Methods for testing for oxidizers**  
*Solid Oxidizers*

The test method for solid oxidizers as prescribed in paragraphs 1 through 5 measures the potential of a solid substance to increase the burning rate of a combustible material when the two are intimately mixed.

1. Ammonium persulfate shall be the reference material. It shall pass through a NO. 100 Sieve in the U.S. Sieve Series (ASTM-E-11-61) and shall contain less than 5% by weight of water.

2. Wood sawdust shall be the combustible material in this test and shall pass through a NO. 50 Sieve in the U.S. Sieve Series (ASTM E-11-61) and shall contain less than 5% by weight of water.

3. A five pound mixture of ammonium persulfate and wood sawdust shall be prepared in a 1 to 1 ratio by weight. A second five pound mixture of the material to be tested, in the particle size in which it will be shipped, and wood sawdust shall be prepared in a 1 to 1 ratio by weight. Both of these mixtures should be mixed as thoroughly as possible.

4. The two mixtures shall be formed into conical piles on incombustible surfaces and the edge of both piles ignited (at one place) simultaneously with laboratory burners or flares. The ignition sources shall be applied until piles are well started and then removed.

5. A substance which causes the sawdust to burn at a rate equal to or greater than the burning rate of the ammonium persulfate mixture shall be classed as an oxidizer.

*Liquid Oxidizers*

The test method for liquid oxidizers as prescribed in paragraphs 1 through 5 measures the potential of a liquid substance to initiate a fire when brought into contact with combustible materials.

1. The test shall be conducted in a box 2' x 2' x 2' constructed of natural wood (not plywood) having sides not more than 1/2" thick. A 1/4" diameter hole shall be drilled at the horizontal center of each of the verticle side 4 inches from the bottom edge. A one inch diameter hole shall be drilled in the center top of the box.

2. The box shall be packed tightly with wood excelsior containing less than 5% of water and the top of the box properly secured in place.

3. Two liters of the liquid under test shall be poured into the box through the hole in the top of the box and, at the same time, the box shall be tipped slightly in different directions so as to distribute the liquid as uniformly as possible throughout the excelsior.

4. The box and its contents shall be allowed to stand for two hours.

5. A substance which causes the ignition of the excelsior shall be classed as a liquid oxidizer.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1 and paragraph (a)(4) of App. A to Part 106)

**Note.**—The Materials Transportation Bureau has determined that this document will not result in a "major rule" under the terms of Executive Order 12291 and DOT implementing procedure (44 FR 11034), nor require an environmental impact statement under the National Environmental Policy Act [49 U.S.C. 4321 et seq.]. Issued in Washington, D.C. on June 4, 1981.

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